

<p align="center">4 AUTHENTICATION MODULE</p>	<p align="center">Page 1 of 3</p>
<p align="center">Division of Forensic Science</p> <p align="center">FORENSIC IMAGING/AUDIO TRAINING MANUAL</p>	<p align="center">Amendment Designator:</p>
	<p align="center">Effective Date: 22-March-2004</p>
<p align="center">4 AUTHENTICATION MODULE</p> <p>4.1 Objectives</p> <p>4.1.1 Understand and explain the importance of using original recordings for enhancement purposes.</p> <p>4.1.2 Understand and explain first, second, etc. generation copies.</p> <p>4.1.3 Understand and explain how magnetic tapes are degraded by repeated playback.</p> <p>4.1.4 Understand and explain what authentication is.</p> <p>4.1.5 Understand what the difference between falsification and alteration.</p> <p>4.1.6 Understand and explain what is required when doing an authentication of video or audio tapes.</p> <p>4.1.7 Understand and explain the four basic types of tampering (deletion, obscuration, transformation, synthesis).</p> <p>4.1.8 Understand and explain the steps involved in conducting an authentication (aural/visual, physical, instrumental analysis).</p> <p>4.1.9 Understand and explain the electromechanical indications of falsification of video/audio tapes (gaps, transients, fades, equipment sounds, and extraneous voices).</p> <p>4.1.10 Understand and explain the physical indications of tampering (pry marks, welding, size, splicing to leader, additional splicing, and length of tape).</p> <p>4.1.11 Understand and explain magnetic development of audio and video tape and how it can show signs of tampering.</p> <p>4.1.12 Understand and explain how spectrum and waveform analysis can be used to indicate tampering.</p> <p>4.1.13 Understand and explain assemble editing.</p> <p>4.1.14 Understand and explain insert editing.</p> <p>4.1.15 Understand and explain audio-dubbing.</p> <p>4.2 Methods of Instruction</p> <p>4.2.1 Lectures</p> <p>4.2.1.1 How videos are produced</p> <p>4.2.1.2 Types of videos</p> <p>4.2.2 Literature Review</p> <p>4.2.2.1 Inglis, Andrew F and Luther, Arch C. <u>Video Engineering</u>, 3rd edition, McGraw-Hill, New York, 1999.</p> <p>4.2.2.2 Davies, Adrian and Fennessy, Phil. <u>Digital Imaging</u>, 4th edition, Focal Press, Oxford, 2001.</p> <p>4.2.2.3 Blitzer, Herbert L and Jacobia, Jack. <u>Forensic Digital Imaging and Photography</u>, Academic Press, San Diego, 2002.</p> <p>4.2.2.4 Equipment and Software Users Manuals</p> <p>4.2.3 Training Programs</p> <p>4.2.3.1 SignalScape Video and Audio -- Proficient operation of the software as it pertains to video and audio analysis.</p> <p>4.2.3.2 DPS Video and Audio -- Proficient operation of the software as it pertains to video and audio analysis.</p>	

4 AUTHENTICATION MODULE		Page 2 of 3
Division of Forensic Science FORENSIC IMAGING/AUDIO TRAINING MANUAL		Amendment Designator:
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4.2.4	Demonstration	
4.2.4.1	Basic authentication techniques will be observed from beginning to end and notes will be taken by the trainee	
4.2.5	Laboratory Exercises	
4.2.5.1	Casework will be completed by trainee under supervision – content and techniques used will be dependent on the cases submitted	
4.3	Evaluation	
4.3.1	Written examination	
4.3.1.1	Paper on how videos are made (concurrent assignment with video module)	
4.3.1.2	Techniques and terms to be defined	
4.3.2	Laboratory testing	
	<ul style="list-style-type: none"> Trainee must complete at least 9 months of casework under direct supervision. This may include real and mock cases. 	
4.3.3	Oral exercises	
	<ul style="list-style-type: none"> Technical review sessions 	
4.3.4	Courtroom exercises	
	<ul style="list-style-type: none"> Trainee must be capable of answering questions such as would be expected in a courtroom scenario. 	
4.4	Examination Questions	
4.4.1	What information/items are required in order to do an authentication of a video or audio tape?	
4.4.2	What are some examples of recording conditions which need to be disclosed in order to perform an authentication evaluation?	
4.4.3	What are the four basic types of tampering? Define each.	
4.4.4	What are five electromechanical indications of falsification? Define each.	
4.4.5	Describe the steps involved in conducting an authentication of a video or audio tape.	
4.4.6	What are some physical signs of tampering?	
4.4.7	What can magnetic development of audio and video tapes show in regards to tampering?	
4.4.8	How can spectrum and waveform analysis be used to indicate tampering?	
4.4.9	What is a waveform monitor?	
4.4.10	What is a vector scope?	
4.4.11	Why is an original necessary in order to authenticate a video/audio tape?	
4.4.12	Can analysis done on original recordings damage the evidence?	
4.4.13	What kind of authentication information can be obtained by analyzing a copy?	
4.4.14	What questions can be answered by an authentication examination?	
4.4.15	Define the following terms:	

4 AUTHENTICATION MODULE	Page 3 of 3
<div> <div>Division of Forensic Science</div> <div>FORENSIC IMAGING/AUDIO TRAINING MANUAL</div> </div>	Amendment Designator:
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<div> <div> <ul style="list-style-type: none"> • Original • Second generation copy • Authentication • Falsification • Alteration • Assemble editing • Insert editing • Audio dubbing • Linear editing • Non-linear editing • Flying erase head • Hi-fi audio track • Linear audio track </div> <div>► End</div> </div>	